

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 09/813,992

REMARKS

Claims 5 and 7 have been examined. New claims 11-14 have been added. Therefore, claims 5, 7, and 11-14 are all the claims pending in the application.

I. Enablement Rejection

The Examiner rejects claim 5 under 35 U.S.C. § 112, first paragraph. The Examiner appears to be rejecting claim 5 under both the Enablement requirement and the Written Description Requirement of 35 U.S.C. § 112, first paragraph. That is, the Examiner alleges that claim 5 contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention. Additionally, the Examiner alleges that the fuse electrodes being “arrayed parallel to each other with a pitch substantially equal to a spot diameter of a laser beam to be used for cutting said fuse electrodes” is not supported by the specification. For at least the following reasons, Applicant respectfully disagrees with the Examiner’s position.

With respect to the Written Description requirement, it is settled law that an Applicant shows possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, structure, figures, diagrams, and formulas that fully set forth the claimed invention. See *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997); see also MPEP 2163(I). While there is no *in haec verba* requirement, newly added claim limitations must be supported in the specification through express, implicit, or inherent disclosure. See MPEP 2163(I)(B).

As shown in the illustrative, non-limiting embodiment of Figure 5, Applicant discloses fuse electrodes 130, which are arrayed parallel to each other with a pitch substantially equal to a

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spot diameter (i.e., laser spot) to be used for cutting the fuse electrodes. That is, as shown in Figure 5, each fuse electrode 130 is spaced so that the diameter of the laser spots do not overlap. Therefore, Applicant respectfully submits that the limitations of claim 5 are supported by Applicant's original disclosure, including at least Figure 5.

With respect to the enablement requirement, Applicant respectfully submits that the subject matter of claim 5 is described in the disclosure in such a way as to enable one skilled in the art to make and/or use the invention. For example, Applicant submits that the disclosure, when filed, contained sufficient information regarding the subject matter of claim 5 to enable one skilled in the art to make and use the claimed invention without undue experimentation. With reference to the illustrative, non-limiting embodiment of Figure 5, Applicant's original disclosure describes with particularity the arrangement of the claimed device, as well as the manner of operating and cutting the fuse electrodes, in such a way as to enable a person of skill in the art to make and use the invention, as claimed (see, e.g., Applicant's disclosure, pages 15-22).

For at least the foregoing reasons, Applicant respectfully requests the Examiner to withdraw the rejection of claim 5 under 35 U.S.C. § 112, first paragraph.

II. Obviousness Rejection

The Examiner rejects claims 5 and 7 under 35 U.S.C. §103(a) as being obvious over Lee et al. (U.S. Patent No. 5,872,390, hereinafter "Lee") in view of Abe (JP-07-273200 A). For the following reasons, Applicant traverses these rejections.

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A. Claim 5:

The Examiner alleges that the primary reference, Lee, discloses an integrated circuit having all of the elements of claim 5 except for the plurality of cutting positions being disposed in respective positions which are different from each other in a direction in which the fuse electrodes extend. However, the Examiner looks to the secondary reference, Abe, for the disclosure of this feature. Further, the Examiner alleges that it would have been obvious to modify the plurality of aligned cutting positions in the insulating layer of Lee by forming a plurality of windows having different positions over each individual fuse, as taught by Abe to prevent damage to an adjacent fuse during the laser cut process. For at least the following reasons, Applicant respectfully traverses this rejection.

Claim 5 defines a new and unique combination of elements that form an integrated circuit device having a plurality of fuse electrodes to be cut by a laser beam. For example, claim 5 recites, *inter alia*, “an insulating film covering said fuse electrodes, said insulating film having a thickness which prevents said laser beam from damaging said fuse electrodes, except for a plurality of cutting positions formed over said fuse electrodes, wherein said insulating film has a thickness which allows said laser beam to pass through said insulating film and cut the fuse electrodes.”

Lee discloses a fuse window with controlled oxide thickness including fuses 102 arrayed parallel to each other, regions 116 in which the oxide layer 104 (i.e., insulating layer) is thin, and regions 118 in which the oxide layer is thick.

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On the other hand, Abe teaches a reflecting plate 4, formed from a metal, having beam irradiating apertures 12, 22, and 32. Additionally, Abe teaches that the reflecting plate 4 prevents the laser beam from reaching the insulating layer 5. On the contrary, Abe does not disclose controlling the insulating layer thickness over the fuse cutting sites, as disclosed by Lee.

For example, Abe discloses that the reflecting plate 4 prevents the laser beam from reaching the insulating layer 5. Further, Abe teaches that there is a risk of trauma to the substrate in the apertures, i.e., where the reflecting plate does not provide protection. In fact, since Abe teaches a reflecting plate for preventing the laser beam from even reaching the insulating layer 5, the thickness of the insulating layer is irrelevant to the device of Abe. Thus, by providing a reflecting plate that prevents the laser beam from even reaching the insulating layer instead of controlling the thickness of the insulating layer to protect the underlying fuse, Abe clearly teaches away from the disclosure of Lee. Therefore, Applicant submits that a person of ordinary skill would not have been motivated to combine Lee and Abe, and thus, Applicant's claimed combination would not have been obvious from Lee and Abe. Accordingly, Applicant requests the Examiner to withdraw the obviousness rejection of claim 5.

B. Claim 7:

Independent claim 7 defines a new and unique combination of elements which form an integrated circuit device. For example, claim 7 recites, *inter alia*, that the adjacent fuse electrodes are "disposed in respective layers which are different from each other." The Examiner concedes that neither Lee nor Abe discloses at least this recitation. However, the Examiner alleges that it would have been obvious to form adjacent fuses in layers different from

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each other, since it has been held that rearranging parts of an invention involves only routine skill in the art (see *In re Japikse*, 86 USPQ 70). Applicant respectfully disagrees with the Examiner's position and traverses this rejection.

For the reasons set forth above with respect to claim 5, Applicant submits that there would not have been a motivation to combine Lee and Abe since Abe teaches away from the invention of Lee as a whole. For example, Applicant submits that arriving at the invention recited in claim 7 would not require merely rearranging parts, as alleged by the Examiner. On the contrary, claim 7 recites a novel combination of elements including adjacent fuse electrodes disposed in respective layers which are different from each other. Since the adjacent fuse electrodes are cut off at respective positions that are different in the thickness direction of the semiconductor substrate, they are less likely to be short-circuited by scattered fragments of the component of fuse electrodes that are cut off. Thus, the fuse ROM is prevented from malfunctioning, and therefore, the fuse ROM can be manufactured with an increased yield. See, e.g., Applicant's specification, page 29, first full paragraph. To this end, Applicant submits that this feature could not have been arrived at merely by rearranging the parts of the applied references.

For example, neither Lee nor Abe discloses fuses disposed in respective layers of the insulating layer that are different from each other. Instead, as the Examiner concedes, both Lee and Abe disclose only that the fuses are disposed in a single layer. Therefore, Applicant submits that rearranging the parts of Lee and Abe would (at best) result in fuses which are disposed in the same layer. Accordingly, a person of skill in the art would not arrive at the combination of

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elements recited in claim 7 merely by rearranging the elements disclosed in Lee or Abe. On the contrary, some additional motivation or suggestion would be required not only to combine the applied references, but to modify the applied references to meet all of the features of claim 7.

Applicant submits that the Examiner has not established a motivation or suggestion in the applied references or in the prior art for modifying the references so that the fuses are disposed in respective layers of the insulating layer that are different from each other, as recited in claim 7. Therefore, Applicant respectfully submits that the Examiner has not established a *prima facie* case of obviousness and the rejection of claim 7 should be withdrawn.

Moreover, assuming *arguendo* that the claimed invention could have been arrived at by rearranging parts (as alleged by the Examiner), it is settled law that merely rearranging the parts of a reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason, without the benefit of Applicant's specification, to make the necessary changes in the reference device. See *Ex part Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (bd. Pat. App. & Inter. 1984); see also MPEP 2144.04(VI)(C). Therefore, the Examiner must establish a motivation or suggestion, either in the references themselves or in the prior art, for modifying the applied references to arrive at the claimed combination.

Applicant submits that neither Lee nor Abe, alone or in combination, provides a motivation or suggestion for modifying the applied references to arrive at the claimed combination. For example, as shown in Figure 1a-4a, Lee merely discloses fuses disposed in a single layer in the direction of the thickness of the device, not in different layers of the device.

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Similarly, as shown in Figure 2, Abe discloses fuse electrodes disposed in a single layer, not in different layers.

Therefore, since neither Lee nor Abe, either alone or in combination, discloses or suggests all of the recitations of claim 7, Applicant respectfully submits that the Examiner has not established a prima facie case of obvious with respect to claim 7. Accordingly, the rejection of claim 7 should be withdrawn.

III. New claims:

New claims 11-14 are added to define more clearly the present invention in varying degrees of scope. Applicant submits that support for new claims 11-13 is provided in the original disclosure (see, for example, the illustrative, non-limiting embodiments described at page 32, first paragraph, of Applicant's specification).

Applicant submits that claims 11-14 are patentable over the cited references for at least reasons analogous to the reasons set forth above with respect to claims 5 and 7. Moreover, Applicant submits that claims 11-14 are separately and individually patentable over the cited references at least by virtue of the new and unique combination of features recited therein.

IV. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

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Respectfully submitted,



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APPENDIX
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 11-14 are added as new claims.

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